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Kia chief: Ford 4x4 is not planned

By Matt DeLorenzo and David Versical
AUTOMOTIVE NEWS STAFF REPORTERS

DETROIT — The president of Kia Motors last week confirmed that his company is no longer pursuing a joint project to develop and export a small sport-utility to Ford dealers in the United States.

President Sun-Hong Kim said talks between Kia and Ford Motor Co. have ended. Speaking through an interpreter, Kim said that Kia has given up hope of exporting the vehicle, known by the code name UW52, to Ford.

His comments echoed sources who had said previously that Ford has dropped plans to import the vehicle (Automotive News, March 20, 1989). Instead, Ford had been looking closely at having a small sport utility produced by a North American coach builder.

An industry source said last week, however, that Ford is again reassessing its strategy and may decide to build the vehicle itself.

Ford is said to be anxious to bring the project to market to match arch-rival Chevrolet, which this year introduced its own small 4x4, the Geo Tracker. There is also concern that the segment could be saturated by the time the Ford entry would make it into the showrooms, in the early 1990s.

Sun-Hong Kim

Sources in Korea and the United States have said that Modern Engineering, a prototype firm based in Warren, Mich., has a contract to do work on the project.

Though the sport-utility deal is off, Kim said his company is satisfied with Ford's handling of its Festiva subcompact and will continue to rely on the U.S. automaker to market Kia's products in North America. As a result, Kia has no plans to set up its own U.S. distribution network, Kim said.

Ford owns a 10 percent stake in Kia.

"The Festiva is very successful," Kim said.

see KIA, page 52

NICK COLES

NADA President Ron Tonkin is interviewed at a Miami television station — just another stop in a nine-day media tour of Florida designed to improve the image of car dealers

TONKIN: *NADA president takes to the road to bolster dealer morale, image*

By Lindsay Chappell
AUTOMOTIVE NEWS STAFF REPORTER

MIAMI — Ron Tonkin listens patiently as a Central Florida woman complains to several thousand listeners about the arrogance, dishonesty and treacherousness of car dealers.

The woman had wanted to buy an inexpensive car. When she thought the deal was done, the salesman told her she would have to put another $500 down to satisfy the banks. The woman walked.

"Do they think we're stupid or something?" the faceless consumer demands of Tonkin on a radio call-in show.

Tonkin, a successful dealer with 12 franchises around Portland, Ore., is dressed impeccably in dark suit, gold-rimmed glasses and a massive headphone set. He is on Day Six of a nine-day media tour through Florida. The president of the National Automobile Dealers Association came to tell the populace that car dealers are getting the short end of the car-business stick these days.

If the mass of Americans would rather talk about the pains of buying a car, his audiences of dealers throughout the country often respond to him viscerally.

Ron Goodman, a Denver Buick-GMC Truck-Nissan dealer, was one of these listed without permission as one of Tonkin's Rough Riders, the group set up to support Tonkin's case against the automakers.

At a dinner during Tonkin's stop in Denver, Goodman heard the call. "I came away a supporter," he said. "I'm behind the NADA, and I'm behind Ron Tonkin."

All over the country, groups of five or 10 dealers find themselves in animated discussions with Tonkin over what they consider factory abuses.

Tonkin finds it trickier to get the same enthusiasm from consumers.

It's the automakers — not the dealers — whose profits are soaring, he tells reporters and audiences over and over. It's the automakers — not the dealers — who are confusing buyers with rebates and finance buydowns. It's the factories whose aggressive retail policies are threatening to run the average dealer out of business.

The Florida woman goes on about how a deal's a deal, and her dealer lied to her. Observers in the studio expect Tonkin to wince: I flew 2,000 files for this? But Tonkin actually seems to enjoy the complaint.

He leans into the microphone to express sympathy.

see TONKIN, page 52

Industry braces for new laws

By Arthur Flax, Jack Keebler and Roger Rowand
AUTOMOTIVE NEWS STAFF REPORTERS

WASHINGTON — Predictions of an oil crisis and tightened fuel economy and emission standards mean the government may be getting back into the auto business.

Legislators and government officials warned automakers last week at the Society of Automotive Engineer's annual government/industry meeting that something will be done this year to attack real and perceived environmental problems and the automobile is on the agenda.

Automakers trotted out alternate fuel vehicles ranging from methanol to electric power and even one manufacturer, General Motors, sponsored a methanol-fuel rally from Detroit to Washington to show it is willing to cooperate.

But how cooperative they will be in the long run depends on how far the government wants to go in raising fuel economy laws or clamping down on tailpipe emissions.

Recent events, such as rising gasoline prices as a result of the Alaskan oil spill, cutbacks in production by the Organization of Petroleum Exporting Countries and growing concern over possible global warming trends lent an air of urgency to the meeting.

Driving clean air:

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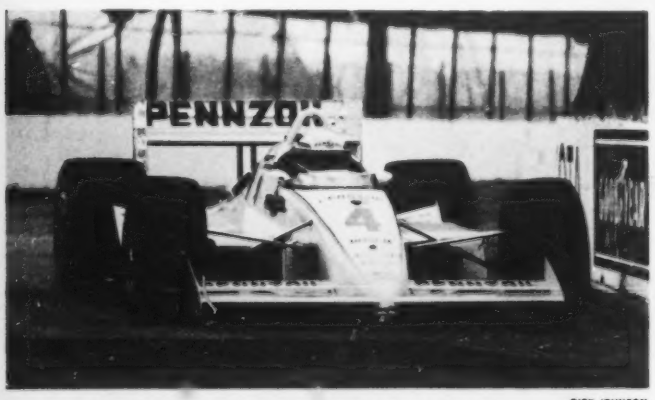
Sen. John D. Rockefeller, D-W.Va., the keynote speaker, told the engineers he expects an energy crisis within the next 12 years. He said next time OPEC's pinch on oil will be even tighter than it was in the 1970s.

"We don't need to see precisely how it might be triggered, whether through renewed action by OPEC, an oil cutoff in the Persian Gulf, disruption in Mexico or Venezuela or an Exxon type of spill. The truth

see SAE, page 51



DICK JOHNSON

Rick Mears in the Penske-owned, Chevrolet-powered Indy car

RACING

GM may limit competition between divisons in bid to win

By Dutch Mandel
AUTOMOTIVE NEWS STAFF REPORTER

As General Motors' teams prepare to qualify this weekend for Memorial Day's Indianapolis 500 classic, they also are testing whether GM can make the business of motorsports more businesslike.

GM will be trying to repeat last year's feat of powering the three fastest cars and filling six of the first seven spots with Chevrolet-engined racers.

Considering GM's expensive, high-profile racing effort, it is surprising that until recently its participation was described by one insider as a helter-skelter effort.

Although GM officials are reluctant to talk about racing budgets, those associated with the series in which GM competes estimate the company spends $25 million to $30 million annually.

GM wants to dominate U.S. racing and believes one of the first ways to do so is by organizing the efforts of its divisions, subsidiaries and operating units involved in racing.

Each has been asked to participate in what has been dubbed "GM's teamwork and technology of motorsports."

GM has officially pursued racing for a short time. It has acknowledged its participation in motor-

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Chevy's Perkins vows to beat Ford Page 4
Integra, Talon, 4wd Eclipse bow Page 7
Page 2

Big 3 set records for sales, profits

By Louise Kertesz
AUTOMOTIVE NEWS STAFF REPORTER

DETROIT — Chrysler Corp.'s record sales and its 91 percent profit increase for the first quarter boosted Big 3 results to their best level for any quarter.

Part of the reason for the sales record is that a new accounting standard, effective the last quarter of 1988, inflated sales by requiring that the results of financial subsidiaries be consolidated with parent company totals. Even so, this year's first quarter surpassed the restated sales for the first quarter of 1988.

Combined sales for the Big 3 for the first three months of this year were $69.1 billion, up 12 percent from the restated sales of a year earlier. Minus the sales from the automakers' financial subsidiaries, total industry sales were $61.3 billion, compared with $54.9 billion in the first quarter of 1988.

Combined income for the Big 3 was $3.5 billion, a 22 percent improvement over the first quarter of 1988, when the total was $2.9 billion.

Chrysler last week announced its net earnings for the quarter were $351 million, compared to $184 million in the year-ago quarter. Income in the first quarter of 1988 was reduced by a $93 million provision for plant closings in the company's Acustar Division.

Despite a higher cost of borrowing, Chrysler Financial Corp. said its first-quarter earnings of $65 million matched its 1988 first-quarter record.

By contrast, both Ford Motor Co.'s financial services operations and General Motors Acceptance Corp. saw their earnings slide because of of the higher interest rates they had to pay for their funds.

Growth in receivables offset the effect of higher interest rates at Chrysler, a company spokesman said.

Chrysler Corp. Chairman Lee Iacocca said Chrysler's first-quarter performance was helped by "a richer product mix," including Plymouth Acclaim, Dodge Spirit, Chrysler New Yorker and Dodge Dynasty and strong minivan and Jeep sales. Better cost management also helped, he said.

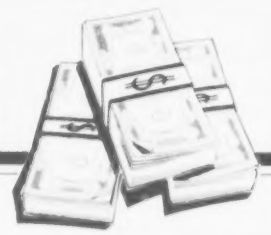
With the phasing out of the K-car, Chrysler's U.S. car market share fell to 10.6 percent in the first quarter from 12.1 percent in the first three months of 1988. But Chrysler's truck share rose to 19.6 percent from 19.1 percent. Chrysler's share of the minivan market edged up to 54.3 percent in the first quarter from 54.0 in the year-ago period.

Chrysler's North American factory sales in the first quarter were 622,825 units compared with 604,-682 last year.

Dealers in the United States and Canada sold 540,584 vehicles in the first three months, down from 632,-461 a year ago.

As a result, Chrysler — like Ford and GM — ended the first quarter with heavy inventories of vehicles, most in dealers' hands.

BIG 3 RESULTS



FIRST QUARTER
(In millions)

	1989	1988	% change
SALES			
General Motors	$33,311	$29,811	+11.74
Ford Motor Co.	25,869	23,197	+11.52
Chrysler Corp.	9,954	8,562	+16.26
TOTAL	$69,134	$61,570	+12.29
PROFITS			
General Motors	$ 1,553	$ 1,092	+42.22
Ford Motor Co.	1,637	1,623	+ 0.86
Chrysler Corp.	351	184	+90.76
TOTAL	$ 3,541	$ 2,899	+22.15

Johnson Chevy sold in Texas

By Michelle Krebs
AUTOMOTIVE NEWS STAFF REPORTER

The former Johnson Chevrolet of Richardson, Texas, Chevrolet's largest-volume retail dealership in 1987, has been purchased by a Kansas megadealer.

Cecil Van Tuyl of Mission Hills, Kan., with his son, Larry, is an investor in 27 dealerships in eight states. He is a majority investor in 18 of those outlets, including the former Johnson Chevrolet.

Van Tuyl is a relative newcomer to the Texas scene. Just over a year ago, he purchased Crest Cadillac in Richardson, Texas. Last December, he bought Toyota of Richardson.

Van Tuyl

He also is moving an Oldsmobile franchise next door to Crest Cadillac, although a neighboring Oldsmobile dealer, Jim Allee, is protesting to the Texas Motor Vehicle Commission that it would put two Oldsmobile stores too close to each other.

Van Tuyl is operating the former Johnson Chevrolet as Reliable Chevrolet.

The dealership's general manager is Thomas Ryan. Ryan once was affiliated with Jim Johnson, former principal of Johnson Chevrolet, in an Austin, Texas, Chevrolet dealership. The partnership ended about six months ago, and Ryan was brought in by General Motors Acceptance Corp. to run Johnson Chevrolet. Jim Johnson continues to operate the Austin dealership.

Johnson Chevrolet was taken over by GMAC last September. The dealership owed GMAC millions of dollars. GMAC had been running the dealership as Patlan Chevrolet since taking it over last fall. At the same time, GMAC was searching for a buyer.

Shortly after the dealership was seized by GMAC, Johnson Chevrolet was placed in Chapter 7 involuntary bankruptcy after three Dallas-area newspapers filed petitions in U.S. Bankruptcy Court. The papers said the dealership owed them a total of more than $238,-000.

Van Tuyl, who started as a Chevrolet dealer in Kansas in 1955, declined to reveal details of the Johnson Chevrolet transaction, including the purchase price. He did say he did not assume any of Johnson Chevrolet's debt, which sources had placed at $10 million to $15 million.

High-risk financing firms go to arbitrator

By Louise Kertesz
AUTOMOTIVE NEWS STAFF REPORTER

A dispute between two companies involved in financing high-risk retail automobile credit is in arbitration, with a third session set for May 18.

The case originated in a lawsuit filed by IDFC Inc. of Carlsbad, Calif., in Superior Court in Los Angeles against Reseda Finance Corp. of Burbank, Calif. in June 1988. IDFC charged Reseda broke its contract by not funding the dealer paper that IDFC, a marketer for Reseda, was sending it.

On Aug. 10, the tables were reversed when Reseda filed a petition for arbitration. The court stayed IDFC's lawsuit Oct. 18.

Reseda is seeking damages resulting from lost profits and damage to its reputation, said M. Edward Franklin, Reseda attorney. He said IDFC's charge that Reseda did not fund some contracts is false. "All paper left with Reseda has been funded," he said.

Last week, the California secretary of state's office said it had no current record of IDFC. In addition, IDFC's advertised phone numbers were disconnected and Pacific Bell had no current listing.

Gary Tabb, who said he was "affiliated with IDFC," said in an interview last week that the principals of IDFC lost their savings trying to salvage their company, and IDFC can't afford a lawyer.

Tabb said that during one of the arbitration sessions, he learned that IDFC had missed the deadline for filing a cross demand, without which the arbitrator can't find in IDFC's favor.

But at his discretion, the arbitrator may allow IDFC to file a cross demand at the session scheduled for May 18, said Reseda's Franklin.

Reseda claims IDFC caused its own problems by giving final approval to contracts, in violation of the agreement.

In its document seeking arbitration, Reseda said IDFC was supposed to obtain automobile sales and lease finance contracts from car dealers, then provide the contracts to Reseda to be funded.

But IDFC went too far, according to Reseda. The document charges that IDFC accepted sign-up fees from dealers who believed they were paying Reseda for guaranteed financing and exclusive rights in specific areas.

IDFC was also supposed to advise Reseda of how much funding was needed so Reseda could secure it, Franklin said. But IDFC didn't keep Reseda informed of its funding needs, he said.

Tabb said Reseda is blaming IDFC because Reseda couldn't come up with the funds.

The arbitrator, Thomas W. Clarke, last week declined to comement on the case.

James C. Borlaug, a director and last-known chief executive officer of IDFC, was located at a phone number listed for First Fidelity Acceptance Corp., whose articles of incorporation listed Tabb as a director, but Borlaug did not return phone calls placed by Automotive News.

Automotive News

Time to vote for All-Stars

Readers will pick 28 auto standouts

Dust off your scouting reports. Look over the talent. Get ready to select the Automotive News 1989 All-Star Team.

As an Automotive News reader, you are eligible to vote for persons in the worldwide automotive industry — vehicle manufacturers, vehicle importers, suppliers, auto dealers — who you believe deserve special recognition for jobs well done during the past year.

There are 28 positions listed on the ballot that appears on Page 32. They include: Chief Executive Officer — North America, Europe, Asia; Chief Operating Officer — North America, Europe, Asia; Division/Group General Manager — North American Company, European Import Company, Asian Import Company.

Positions also include these automotive specialties: Design, Engineering, Product Planning, Manufacturing, Purchasing, Finance, Marketing/Sales, Service/Parts, Truck Operations, Dealer Relations, Government Relations, Labor/Industrial Relations, Advertising, Public Relations, International Relations, Rookie of the Year, Dealer of the Year, Supplier Executive of the Year, Industry Leader of the Year.

see ALL STARS, page 32

Nissan says Italy accepts U.K. Bluebirds

By Richard Johnson
AUTOMOTIVE NEWS STAFF REPORTER

FRANKFURT, West Germany — Nissan Motor Co.'s United Kingdom subsidiary said it is shipping British-built Bluebird sedans to Italy without restriction. But the Italian government denies it has backed down from its previcus demand that the units be included in its quota for Japanese cars.

Last month, France agreed to allow British-built Nissans into that country without counting them against the government's quota on Japanese cars.

Previously, French officials refused to consider United Kingdom-built Nissans as European cars until they achieved 80 percent local content. The cars currently have about 70 percent European content, and Nissan promises to raise that to 80 percent by 1990, a year ahead of schedule.

The Italians, meanwhile, said they have not changed their position — they do not view the Bluebird as a European car. They added that any shipments in excess of 1989's quota will be counted against next year's limit.

Nissan, which two years ago opened an assembly plant in Washington, England, began exporting to the Continent last fall.

Italy limits the Japanese to shipping 2,550 units annually from Japan and 14,000 Japanese cars from other European markets.

"Basically, we've got no problems shipping and selling cars in Italy," said a Nissan spokeswoman in London. "We've been shipping according to our plan and they haven't been stopped."

She said the company has sold 558 cars in Italy this year, compared with its quota of 156 cars. In the January-March period, she said, Nissan in Britain exported 1,-160 cars to Italy and plans to ship 3,164 during the calendar year.

Renato Ruggeiro, Italy's foreign trade minister, last week denied the government has backed down from its earlier position.

But a Fiat spokesman in Turin said the Italian government has decided not to set a rigid cutoff. Units in excess of the quota will be counted against next year's limit, he said.

"The government denies that there was any kind of an agreement, informal or otherwise, with the British government," said the Fiat spokesman.

In France, Japanese cars are limited to 3 percent of the total market — in 1988, that was 66,000 units. Nissan has shipped 3,000 cars this year to France from England.

Correction

A headline in the May 1 issue should have said that Pontiac will shift its STE designaton to the Grand Prix for the 1990 model year, not the Grand Am. Pontiac's all-wheel-drive layout will remain on the 6000 in the 1990 model year. Pontiac officials said the 6000 won't be dropped after the 1990 model year as the story stated, though they would not give a date for its elimination from the lineup.

Worker screening gives edge

By Lindsay Chappell
AUTOMOTIVE NEWS STAFF REPORTER

As two transplants add second shifts this month, an industry survey indicates both will have more long-term success with their work forces than older plants because of new recruitment procedures.

Diamond-Star Motors, the Mitsubishi Motors-Chrysler Motors joint-venture in Normal,Ill., begins a second shift this week that will eventually employ 1,000 workers, while in Georgetown, Ky., Toyota Motor Manufacturing has just completed training about 1,125 workers who will form a second shift this month.

Both plants are less than a year old. The second shifts will increase Toyota's work force to 2,800 and Diamond-Star's to 2,400.

The companies received state assistance in recruiting and screening employees and conducted extensive employee screening programs. According to an unpublished study by a national personnel consulting firm, that now-standard practice among transplants will probably give the companies long-term advantages over other companies in work force stability and efficiency.

"The company that pre-screens workers not only ends up with a more qualified employee for the immediate job, but there are apparently other, longer-term benefits that will become apparent several years down the road," said Mark Lifter, partner-in-charge at Arthur Andersen & Co.'s human resources consulting group in Detroit.

"Applicants typically demonstrate in the (screening) process that they can communicate better, work in groups and make decisions," he said.

Lifter's group recently completed a six-month study of employee screening practices at automotive plants to determine if they

see 2ND SHIFT, page 49

AUTOMOTIVE NEWS/JOE WILSSENS

Hyundai Chairman Chung Se Yung: Carefully studying overcapacity in U.S.

Hyundai reaches high in niche and capacity

By Kathleen Hamilton
AUTOMOTIVE NEWS STAFF REPORTER

DETROIT — Korean automaker Hyundai is not ready to follow the Japanese into U.S. assembly because, as Chairman Chung Se Yung sees it, as many as 15 U.S. assembly plants may close within three years.

"Your demand is not increasing rapidly; however, you have about 2 million cars excess capacity coming in two to three years' time. So we're going to watch how that will be emerging, then we'll decide what to do here," he said.

Hyundai Motor Co. recently started up its new, highly automated plant in Bromont, Ontario, though, and plans to reach full capacity of 100,000 units annually by 1991 — at nearly the same cost of production as in Korea.

Chung and other Hyundai executives in Detroit for a U.S. government-sponsored conference on selling auto parts to the Koreans repeatedly emphasized that Korea is losing its status as low-cost producer.

"I think our wages will double in three years' time," said Chung, 62, chairman of both the parent Hyundai Group and Hyundai Motor Co. "Our wages average about $1,100 (U.S.) per month. That's very high."

One result is a booming Korean domestic market, which now accounts for 50 percent of Hyundai output, compared to 61 percent two years ago.

"In 1987, our (domestic) car market grew 48 percent from the previous year; last year it was only 35 percent because of short supplies because of labor disputes. But this year, if we can supply enough, we can expand 50 percent over last year, easily," Chung said.

Korea's shift in economy has another impact for Hyundai: It necessitates a shift in product.

The new intermediate-sized Sonata is one step along this path; a 2+2 based on a new Excel will be another.

"With Mercedes Benz, you are paying 100 percent for the car, 200 percent for the star," Chung laughed. "Toyota is the same, Honda is the same. So, when we build up our brand name, then naturally we can go up, too. So this is only a start."

He continued: "We hear a lot about our Sonota in the United States from our dealers. The qual-

see CHUNG, page 49

Chinese put brakes on Audi kit deal

By Richard Johnson
AUTOMOTIVE NEWS STAFF REPORTER

FRANKFURT, West Germany — Shipment of Audi 100/200 kits to China under a licensing agreement signed last summer has been held up pending Chinese government approval for necessary hard currency payments.

But VW officials in Wolfsburg denied that the project with First Automobile Works in the city of Changchun has been stymied by ongoing student protests in China.

Students are demanding greater democracy and an end to what they perceive as the privileges of the Communist Party elite and corruption in government. While the government is resisting demand for greater democracy, it apparently offered a ban on the import of luxury cars as part of its initial response to the unrest, sources said.

But like most government pronouncements, the immediate impact of the announcement is unclear. Although Mercedes-Benz and VW each have small operations in China to assemble knockdown kits, the cars are still perceived by the Chinese as imports.

Meanwhile, substantive talks aimed at setting up a separate joint auto production venture in Changchun are being conducted. A delegation from First Automobile Works is visiting Wolfsburg.

The two sides are discussing the construction of a factory to build 150,000 Volkswagen cars annually, beginning in 1996. The vehicles would be for Chinese and export markets.

Volkswagen AG signed a series of agreements with First Automobile Works last year, covering licensing of the Audi 100/200, delivery of necessary tools and supplies, and delivery of parts for local assembly. The two sides also agreed to enter negotiations aimed at a second phase, which calls for construction of a new assembly plant.

The first 500 Audi kits were shipped to Changchun for assembly last summer and production was completed by November. Since that time no additional CKD units have been sent. VW plans to export another 2,000 Audi kits to China this year but the timing will depend on the central government's authorization for the funding.

The schedule announced with the signing of the licensing agreement last summer called for raising Audi output to 30,000 units annually by 1992.

A VW spokesman in Wolfsburg said there has been no delay in the timetable: "We are talking with the Chinese people about the time for shipment. It is still planned for this year, it is just a problem of financing it. They need permission from the government in Beijing because they have to pay in foreign currency. It has taken time, but it is no slower than expected."

He also said the current delay is unrelated to ongoing disturbances in China.

"The problems with the students are concentrated in Beijing, and Changchun is several hundred kilometers north of Beijing," he said.

The Changchun factory also produces a light-duty utility vehicle and the so-called Red Flag passenger car.

Volkswagen is moving forward in its negotiations with First Automobile Works on a separate joint venture in the same city.

He said a German delegation is planning a lengthy visit to China, probably in the early fall, to continue the talks. He said discussions now center on a "medium-sized" VW model, not an Audi. He said the model has not been decided.

Unlike the Audi licensing deal, he said it would be a joint venture in a new factory in Changchun, with Volkswagen holding a minority share.

Automotive News Staff Correspondent Stephen Vines in Hong Kong contributed to this report.

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Automotive News expands used-car data

By Charles M. Thomas
AUTOMOTIVE NEWS STAFF REPORTER

Wholesale prices of late-model used cars have climbed steadily since February, collectively posting gains of about $200 per month. The figure is based on auto auction reports to the NADA Official Used Car Guide.

The National Automobile Dealers Association unit will provide data on auction prices starting this week in Automotive News.

The new graphs will provide the same information as the ones Automotive News has published for more than two decades. The difference is that NADA's data base is larger.

Lynn Weaver, editor of the guide, said the market is lagging slightly compared to the same period in 1988. But he characterized the market as strong overall.

He cited a later break in the weather this spring and confusion in the new-car retail market as reasons for the slow start.

"Days' supplies of new vehicles are up and incentives are back in full force," he said. "More of the imports are playing the incentive game and have buyback programs."

Prices have eased from last year's because of the influx of a larger number of late-model import cars involved in buyback programs, said Weaver.

In those programs, automakers either sell vehicles to the rental-car companies and then buy them back or give the rental companies a guaranteed rate of depreciation.

If the vehicles are repurchased by the automakers, they are remarketed to dealers through auctions. Under the guaranteed depreciation program, the rental companies sell them at auction and the auto manufacturers make up the price difference.

Also, as new-car retail sales soften, there are fewer trade-ins, which indirectly affects the wholesale market.

Most surprising is the continued strength of 1989 models. They have risen an average of almost 15 percent in price since February. As more 1989s enter the market, Weaver expects prices to level out.

Meanwhile, prices for 1988 models are fluctuating downward as more vehicles enter the market.

Automotive News will publish the graphs twice a month rather than every week. They will reflect a 15-day average and a monthly average of auction prices.

Data is derived from 70 major dealer-only auto auctions reporting to the NADA Official Used Car Guide every week. Those auctions deal in late-model vehicles that will eventually be sold at retail.

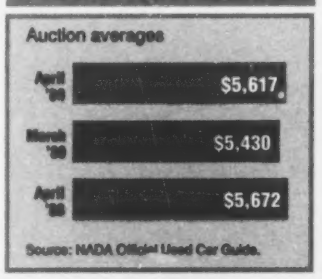
"This information will give Automotive News readers an opportunity to follow trends in the wholesale used-car market," said Weaver.

"It will reflect overall trends, not individual prices or local markets. It is a barometer of the used-car market."

A bar graph will show current month-to-date price average, month-ago price average and year-ago price average.

All types of vehicles sold at auctions are used in the samples, from high-dollar luxury cars to compact vehicles."Any vehicle we get from the auto auctions except as-is or salvage vehicles go into the sample," Weaver said.

Used car sales



Model breakdown

Year	April 1989	March 1989	Feb. 1989
1989	$11,334	$10,807	$9,854
1988	8,403	8,540	8,521
1987	6,410	6,337	6,101
1986	5,514	5,435	5,226
1985	4,457	4,399	4,184
1984	3,661	3,606	3,520
1983	2,843	2,872	2,675
1982	2,159	2,156	2,063
Overall Average	$5,617	$5,430	$5,234

Source: NADA Official Used Car Guide.

SALES

DOMESTIC CAR SALES

	Apr. 21, to Apr. 30, 1989	Same Period, 1988	Apr. 1989	Same Month, 1988	Jan. 1, to Apr. 30, 1989	Same Period, 1988
Alliance	0	229	0	543	0	2,990
Eagle	0	64	0	149	0	1,059
Premier	1,298	1,432	3,596	3,393	14,750	9,768
Total Eagle	1,298	1,725	3,596	4,085	14,750	13,817
Horizon	1,059	2,065	2,862	5,012	10,630	16,698
Laser	694	0	1,638	0	4,424	0
Sundance	2,745	3,105	7,109	7,208	27,275	25,539
Turismo	0	56	0	150	0	668
Reliant	1,212	4,172	3,497	10,701	13,335	47,421
Acclaim	3,289	0	9,139	0	22,771	0
Caravelle	20	518	58	1,482	377	7,645
Gran Fury	44	668	230	1,394	1,237	4,371
Total Plymouth	9,063	10,584	24,533	25,947	80,049	102,342
LeBaron K	19	1,001	79	2,674	477	10,434
LeBaron J	3,806	3,519	9,579	8,495	29,665	38,769
LeBaron GTS	165	581	490	1,485	2,001	5,970
Fifth Avenue	432	1,426	1,410	4,010	5,609	22,215
New Yorker C	3,430	2,406	9,465	5,178	35,427	18,102
New Yorker E	4	503	17	1,557	78	13,343
Total Chrysler	7,856	9,436	21,040	23,399	73,257	108,833
Omni	999	1,975	2,753	4,876	10,442	15,562
Shadow	2,495	3,277	6,485	7,803	26,778	29,332
Charger	0	72	0	147	0	649
Daytona	3,271	2,994	8,431	7,076	25,127	25,473
Aries	1,113	4,058	3,215	10,678	12,776	41,347
Lancer	90	341	293	850	1,217	3,936
Spirit	2,585	0	7,145	0	19,622	0
Diplomat	75	1,139	211	2,933	1,787	7,748
Dynasty	4,146	2,623	11,041	5,940	41,935	22,748
Dodge 600	23	464	78	1,436	382	6,874
Total Dodge	14,797	16,943	39,652	41,739	140,066	153,669
CHRYSLER MOTORS	33,014	38,688	88,821	95,170	308,122	378,661
Escort	8,691	10,938	27,078	28,643	114,996	120,702
Mustang	6,081	6,877	19,192	17,617	65,606	66,964
Tempo	6,152	9,411	21,172	22,671	80,955	94,921
Taurus	11,496	13,406	35,070	32,836	118,345	134,737
Thunderbird	4,057	4,381	12,897	10,811	43,289	44,748
Probe	4,371	1,496	11,325	3,354	41,255	5,755
Crown Victoria	3,192	3,827	9,745	9,816	35,225	40,689
Total Ford Div.	44,040	50,336	136,479	125,748	499,671	508,516
Lynx/Tracer	1,686	2,514	5,262	5,224	18,230	20,935
Topaz	2,542	3,324	8,148	7,423	31,958	27,795
Sable	3,680	5,379	12,685	10,861	38,592	42,030
Cougar	3,260	4,470	10,799	10,225	35,681	39,051
Grand Marquis	3,163	4,178	9,376	10,336	36,245	38,972
Total Mercury	14,331	19,865	46,270	44,069	160,706	168,783
Continental	1,499	1,459	5,052	3,585	19,559	14,085
Lincoln	3,235	5,068	11,982	10,853	37,732	40,692
Mark VII	733	842	2,351	1,920	8,628	7,644
Total Lincoln	5,467	7,369	19,385	16,358	65,919	62,421
Total L-M Division	19,798	27,234	65,655	60,427	226,625	231,204
FORD MOTOR CO.	63,838	77,570	202,134	186,175	726,296	739,720
Skyhawk	767	1,238	2,051	2,752	6,967	11,387
Somerset/Skylark	2,094	1,762	5,830	3,808	19,455	19,194
Century	5,390	3,474	12,441	8,358	47,419	38,523
Regal	3,083	3,996	7,636	9,627	26 942	39,716
LeSabre	5,028	5,134	12,155	11,520	38,464	55,013
Reatta	420	180	847	308	2,516	825
Electra	2,502	2,129	6,786	4,755	26,029	28,260
Riviera	1,191	238	2,486	788	6,877	3,747
Total Buick	20,475	18,151	50,232	41,916	174,669	196,665
Cimarron	0	309	15	659	227	2,514
Allante	81	177	278	325	1,101	1,134
Seville	658	1,430	1,992	2,281	8,022	6,977
DeVille	5,041	7,304	15,512	14,796	56,567	52,826
Brougham	961	1,849	3,072	4,080	12,227	13,631
Eldorado	958	1,469	2,895	2,983	10,925	9,261
Total Cadillac	7,699	12,538	23,764	25,124	89,069	86,343
Chevette	0	3	0	16	0	161
Geo Prizm/Nova	2,821	4,764	7,119	11,568	17,980	45,025
Cavalier	8,453	9,550	25,596	25,126	98,458	96,473
Camaro	4,016	3,686	12,205	9,640	36,910	32,562
Celebrity	5,098	8,501	18,022	21,896	74,978	93,184
Corsica/Beretta	11,245	13,803	33,197	36,427	119,964	137,547
Monte Carlo	586	1,271	586	3,536	1,444	15,216
Caprice	4,898	5,499	15,292	13,795	49,850	54,215
Corvette	663	930	1,930	2,446	6,267	8,634
Total Chevrolet	37,780	48,007	113,947	124,450	405,851	483,017
Firenza	1	546	1	910	9	5,132
Calais	3,171	3,694	8,718	8,214	30,459	34,050
Cutlass Ciera	6,505	8,063	18,380	18,347	67,137	77,798
Cutlass Supreme	2,640	3,811	6,852	8,818	34,298	35,276
Olds 88	4,698	6,194	13,753	14,623	48,707	61,542
Olds 98	2,322	2,701	6,787	5,628	24,189	26,607
Toronado	218	980	588	1,688	2,797	5,597
Total Oldsmobile	19,555	25,989	55,079	58,228	207,596	246,002
Fiero	129	894	327	2,107	1,264	9,975
Pontiac 1000	0	0	0	5	0	118
Sunbird	3,838	3,001	10,133	7,137	30,470	27,580
Firebird	2,693	2,557	7,492	6,155	21,516	21,725
Grand Am	7,124	8,452	17,910	20,676	66,472	80,890
Pontiac 6000	2,854	3,976	7,460	9,545	25,006	34,328
Grand Prix	3,778	3,645	10,285	9,445	46,735	26,681
Bonneville H	3,231	3,566	8,994	9,315	31,045	41,659
Paris./Safari	175	288	480	568	1,466	2,528
Total Pontiac	23,822	26,358	63,081	64,953	223,974	245,474
GENERAL MOTORS	109,331	131,043	306,103	314,671	1,101,159	1,257,501
HONDA	21,439	17,512	40,844	33,660	124,678	120,026
Civic	9,236	4,809	17,600	8,688	55,587	29,566
Accord	12,203	12,703	23,244	25,172	69,091	90,460
MAZDA	1,820	1,345	4,085	2,295	14,762	8,277
MITSUBISHI	730	0	1,939	0	5,817	0
NISSAN	3,663	6,545	7,226	10,649	34,315	28,270
TOYOTA	7,615	2,200	16,292	4,115	54,535	17,053
VOLKSWAGEN	0	2,712	0	4,625	0	16,074
DOMESTIC TOTAL	241,450	277,615	667,444	651,590	2,369,684	2,565,582
IMPORT TOTAL			242,555	247,020	892,179	981,127
INDUSTRY TOTAL			909,999	898,580	3,261,863	3,546,709

*—U.S.-built Volkswagen models sold after June 30, 1988, are included in import totals.

April sales up despite late slide

By Charles M. Thomas
AUTOMOTIVE NEWS STAFF REPORTER

DETROIT — Domestic car sales declined in late April despite a round of incentives from automakers that are the most generous in two years and were expected to bring buyers into the showrooms in bigger numbers.

Domestic car sales for the eight selling days in the April 21-30 period slipped 13.03 percent to 241,450 from 277,615 for nine selling days last year. The daily selling rate was 30,181 this year, compared to 30,846 last year, a 2.16 percent drop.

Industry car sales for the full month totaled 909,999, up 1.27 percent over 898,580 in April 1988.

Sales for domestic automakers were 667,444 for the month, up 2.44 percent from 651,560 a year ago. Import sales dropped to 242,555, down 1.81 percent from 247,020 in April 1988.

"April was good but not exceptional," said Perry Krabbenhoft, owner of Krabbenhoft Chevrolet-Pontiac-Buick in Northwood, N.D. "All of a sudden, it slowed down. Even our shop has slowed to a standstill."

Despite the spate of incentives offered by automakers, industry car sales for the first four months of the year fell 8.03 percent to 3,261,863 from 3,546,709.

Domestic car sales eased 7.64 percent to 2,369,684 from 2,565,582 in 1988. Import car sales skidded 9.07 percent to 892,179 from 981,127.

Ford Motor Co. was the only one of the Big 3 to report a sales gain in April; its dealers delivered 8.57 percent more cars than they did a year ago.

General Motors' sales were off 2.72 percent, and Chrysler Motors suffered a 6.67 percent decline for the month.

Conversely, three of the transplants moved up for the month. Sales of U.S.-built Hondas rose 20.63 percent; Mazda reported an advance of 78 percent, and Toyota sold almost four times as many U.S.-built autos as in 1988. Its new Georgetown, Ky., plant was the reason.

Nissan didn't share in the prosperity. Sales of Sentra models from its Smyrna, Tenn., plant declined 32.14 percent for the month.

Nissan fared better on the import side with an April increase of 9.94 percent. Honda's imports were up 30.25 percent. Hyundai sales slipped 33.19 percent in April from the year-ago total.

see SALES, page 49

IMPORTED CAR SALES

	April 1989	April 1988	4 Mos., 1989	4 Mos., 1988
Acura	12,716	10,600	43,499	39,095
Alfa Romeo	206	577	1,242	1,885
Audi	1,064	2,073	5,691	7,348
BMW	5,900	6,129	23,376	22,891
Chevrolet	12,496	8,855	36,009	39,973
Chrysler	769	797	2,559	3,202
Daihatsu	1,055	753	4,395	3,340
Dodge	3,904	4,735	13,824	18,914
Ford	6,426	5,461	25,780	23,523
Eagle	2,362	671	10,296	7,194
Honda	25,661	19,702	74,556	79,542
Hyundai	16,808	25,157	66,499	96,183
Isuzu	1,520	1,744	6,069	6,428
Jaguar	1,344	1,758	5,827	6,180
Maserati	21	98	111	347
Mazda	17,373	16,818	68,133	75,656
Mercedes-Benz	5,934	8,341	23,082	27,643
Mercury	729	947	3,281	3,214
Mitsubishi	5,347	6,054	22,546	22,327
Nissan	34,298	31,197	132,673	123,360
Peugeot	558	712	1,984	1,959
Plymouth	3,712	4,110	12,720	16,912
Pontiac	4,124	6,717	15,541	20,713
Porsche	789	1,523	2,597	5,949
Saab	2,693	2,807	10,611	12,598
Sterling	351	546	2,135	3,600
Subaru	12,529	11,535	50,307	48,033
Suzuki	414	0	2,000	0
Toyota	40,501	43,605	145,339	170,655
Volkswagen	11,388	11,922	42,076	48,343
Volvo	8,690	7,976	34,090	32,099
Yugo	873	3,100	3,331	12,021
TOTAL	242,555	247,020	892,179	981,127

*—Volkswagen totals include U.S.-built models sold after June 30,1988. Sales charts compiled by Karen Detkowski

MARKET SHARES, Apr. 1989

	Total Sales	Pct. of Total
SUBCOMPACT	89,769	9.86
COMPACT	167,122	18.37
INTERMEDIATE	291,386	32.03
STANDARD	115,785	12.72
SPECIALITY	3,382	0.37
IMPORT	242,555	26.65
TOTAL	909,999	100.00

U.S. CAR SALES BY MARKETING UNITS

	April 1989	Percent Share	April 1988	Percent Share	4 Mos., 1989	Percent Share	4 Mos., 1988	Percent Share
Alfa Romeo	206	0.02	577	0.05	1,242	0.04	1,885	0.05
American Honda	79,221	8.71	64,162	7.14	242,733	7.44	238,663	6.73
BMW	5,900	0.65	6,129	0.68	23,376	0.72	22,891	0.65
Buick	50,232	5.52	41,916	4.66	174,669	5.35	196,665	5.54
Cadillac	23,764	2.61	25,124	2.80	89,069	2.73	86,343	2.43
Chevrolet	126,443	13.89	133,305	14.84	441,860	13.55	522,990	14.75
Chrysler	21,809	2.40	24,196	2.69	75,816	2.32	112,035	3.16
Daihatsu	1,055	0.12	753	0.08	4,395	0.13	3,340	0.09
Dodge	43,556	4.79	46,474	5.17	153,890	4.72	172,583	4.87
Eagle	5,958	0.65	4,756	0.53	25,046	0.77	21,011	0.59
Ford	142,905	15.70	131,209	14.60	525,451	16.11	532,039	15.00
Hyundai	16,808	1.85	25,157	2.80	66,499	2.04	96,183	2.71
Isuzu	1,520	0.17	1,744	0.19	6,069	0.19	6,428	0.18
Jaguar	1,344	0.15	1,758	0.20	5,827	0.18	6,180	0.17
Lincoln	19,385	2.13	16,358	1.82	65,919	2.02	62,421	1.76
Maserati	21	0.00	98	0.01	111	0.00	347	0.01
Mazda	21,458	2.36	19,113	2.13	82,895	2.54	83,933	2.37
Mercedes	5,934	0.65	8,341	0.93	23,082	0.71	27,643	0.78
Mercury	46,999	5.16	45,016	5.01	163,987	5.03	171,997	4.85
Mitsubishi	7,286	0.80	6,054	0.67	28,363	0.87	22,327	0.63
Nissan	41,524	4.56	41,846	4.66	166,988	5.12	151,630	4.28
Oldsmobile	55,079	6.05	58,228	6.48	207,596	6.36	246,002	6.94
Peugeot	558	0.06	712	0.08	1,984	0.06	1,959	0.06
Plymouth	28,245	3.10	30,057	3.34	92,769	2.84	119,254	3.36
Pontiac	67,205	7.39	71,670	7.98	239,515	7.34	266,187	7.51
Porsche	789	0.09	1,523	0.17	2,597	0.08	5,949	0.17
Saab	2,693	0.30	2,807	0.31	10,611	0.33	12,598	0.36
Sterling	351	0.04	546	0.06	2,135	0.07	3,600	0.10
Subaru	12,529	1.38	11,535	1.28	50,307	1.54	48,033	1.35
Suzuki	414	0.05	0	0.00	2,000	0.06	0	0.00
Toyota	56,793	6.24	47,720	5.31	199,874	6.13	187,708	5.29
Volvo	8,690	0.95	7,976	0.89	34,090	1.05	32,099	0.91
VWoA	12,452	1.37	18,620	2.07	47,767	1.46	71,765	2.02
Yugo	873	0.10	3,100	0.34	3,331	0.10	12,021	0.34
TOTAL	909,999	100.00	898,580	100.00	3,261,863	100.00	3,546,709	100.00
TOTAL GM	322,723	35.46	330,243	36.75	1,152,709	35.34	1,318,187	37.17
TOTAL FORD	209,289	23.00	192,583	21.43	755,357	23.16	766,457	21.61
TOTAL CHRYSLER	99,568	10.94	105,483	11.74	347,521	10.65	424,883	11.98
TOTAL JAPANESE	221,800	24.37	192,927	21.47	783,624	24.02	742,062	20.92
TOTAL EUROPEAN	39,811	4.37	52,187	5.81	156,153	4.79	196,937	5.61
TOTAL KOREAN	16,808	1.85	25,157	2.80	66,499	2.04	96,183	2.71

Big 3 totals include their captive imports. Percent share may contain error of one or two points due to rounding.

GLOBAL WARMING?

Chrysler: CAFE hike possible

Ford, GM opposed; all back fuel tax to stem CO2

By Arthur Flax
AUTOMOTIVE NEWS STAFF REPORTER

WASHINGTON — At a Senate hearing last week, Chrysler Corp. veered from the ranks of the Big 3 by acknowledging that modest increases in fuel-economy regulations are possible.

But all the domestic automakers lined up in favor of fuel taxes as the best way to slow the "greenhouse" effects of carbon dioxide emissions.

At issue is the threat of global warming, caused in part by the carbon dioxide "greenhouse gas" emissions from automobiles, industry and other sources. The amount of carbon dioxide produced by an automobile is tied directly to fuel economy; i.e. the higher the mileage, the less carbon dioxide.

"Certain modest levels of improvement can be achieved in corporate average fuel economy with adequate leadtime and with an appreciation of the very large costs involved in diffusing existing technology," Robert G. Liberatore, Chrysler Corp. executive director, public policy and legislative affairs, told the subcommittee.

"Existing technology can be diffused more quickly and major technological breakthroughs will be more likely at higher fuel prices," he said, adding, "We recommend energy taxes or fees as the most effective way to spur energy conservation."

Chrysler was also the only domestic automaker to speak in support of CAFE requirements as they now exist.

Liberatore said, "Chrysler believes that CAFE can and should serve as a regulatory safety net, ensuring that zigzags in market conditions do not lead producers to let new-car CAFE erode. . . . But CAFE cannot be a total substitute for market forces."

General Motors and Ford Motor Co. essentially summarized comments made in earlier hearings. Marina v.N. Whitman, GM vice president and group executive for the public affairs staffs, said market forces and not CAFE have resulted in mileage gains.

Helen O. Petrauskas, Ford vice president, environmental and safety engineering, said CAFE puts full-line U.S. automakers at a competitive disadvantage with Asians.

Some members of the subcommittee expressed their displeasure with the GM and Ford positions.

"Your arguments (that CAFE increases will change the American lifestyle) sound like deja vu (compared with the same arguments made before CAFE regulations were first put into effect)," Sen. Richard Bryan, D.-Nev., told Whitman. "Frankly, I am not persuaded that CAFE has not had an impact on fuel economy."

New technologies, Petrauskas said, should yield incremental fuel economy improvements but will require some leadtime and could result in higher consumer costs.

But Subcommittee Chairman Albert Gore, D.-Tenn., said the U.S. fleet contributes as much as one-third of CO2 emissions and the United States emits more CO2 than any other nation. Gore said Ford's suggestions for change were so minimal that the United States would hold no weight in asking other countries to take action on global warming.

Gore has sponsored a bill that would raise CAFE in response to global warming concerns (see box).

Clarence M. Ditlow, director of the Center for Auto Safety, said that current auto company arguments against raising fuel economy mirror those presented in 1975 when CAFE levels were set at 20 mpg for 1980 and 27.5 mpg for 1985.

Ford, Ditlow said, argued that its product line would consist of sub-Pinto-sized vehicles or range in size from below subcompacts to Maverick dimensions. Chrysler, he said, predicted the legislation would outlaw most full-sized sedans and station wagons, and GM said it would restrict the availability of five- and six-passenger cars.

Deborah Lynn Bleviss, executive director of the International Institute for Energy Conservation, and Marc Ledbetter of the American Council for an Energy Efficient Economy, advocated a CAFE system based on percentage improvements over an automaker's CAFE in a baseline year. All CAFE bills now before Congress include such a system. Bleviss and Ledbetter called for a CAFE setup that would provide for a goal of 45 mpg for cars and 35 mpg for light trucks.

Although Ford does not support CAFE increases, Petrauskas said such a system based on percentage improvements would affect all manufacturers equally.

If Congress believes CAFE increases are necessary, the system should take into account the differing size mix among manufacturers and also safety, emissions and other requirements that have an impact on fuel economy, Petrauskas said.

"CAFE is a poor measure of a manufacturer's technical effort because market changes can easily offset the application of new technology," she said. "An equal percentage task for all manufacturers that is independent of sales mix would avoid these inequities."

Petrauskas added that those improvements should be made over a long period of time and not in just one year.

1995 FUEL ECONOMY GAINS BY AVAILABLE TECHNOLOGY*

Office of Technology Assessment, Department of Energy

Technology	Pct. fuel-economy gain	Pct. penetration increase 1987-1995	Pct. fleet fuel economy gain	Pct. fuel-economy gain	Pct. penetration increase 1987-1995	Pct. Fleet fuel-economy gain
Front-wheel drive	12.0	10	1.2	12.0	10	1.2
4/6-cylinder/4-valve	10.0/5.0	40	3.0	10.0	40	4.0
Four-speed automatic	7.5	40	3.0	7.5	40	3.0
Electronic transmission control	1.5	80	1.2	1.5	75	1.1
Aerodynamics	3.4	100	3.4	3.4	80	2.7
Tires	0.5	100	0.5	0.5	100	0.5
Lubricants	—	—	—	0.5	100	0.5
Accessories	1.0	100	1.0	1.0	100	1.0
Engine improvements						
Overhead cam engines	6.0	20	1.2	—	—	—
Overhead camshafts	—	—	—	6.0	10	0.6
Roller cams	1.5	40	0.6	1.5	80	1.2
Low friction rings/pistons	1.5	80	1.2	2.0	80	1.6
Throttle body fuel injection	3.0	10	0.3	3.0	10	0.3
Multipoint fuel injection	7.0	10	0.7	3.0	10	0.3
Total percentage increase			17.3			18.3
	1995 Fuel Economy = 32.8 mpg			**1995 Fuel Economy = 31.9 mpg**		

*Estimates

No easy answer to new fuels, high CAFE, low emissions

By Arthur Flax
AUTOMOTIVE NEWS STAFF REPORTER

WASHINGTON —Automakers, faced with the prospect of greatly increased fuel economy requirements as a response to global warming concerns, contend there is no Buck Rogers solution to doubling fuel efficiency.

Rather, many of the improvements will be incremental and focus on existing technology in the short term, while alternate fuels, such as alcohol blends, may provide a bridge between existing engines and exotic approaches such as turbines, fuel cells or hydrogen power in the distant future.

One of the most promising technologies just now gaining a foothold in production cars involves engines using four valves per cylinder instead of two.

A Department of Energy study estimates four-valve technology can improve fuel economy by 10 percent per car.

As a result, the study predicts this technology will generate a 4 percentage point chunk of the 18.3 percent increase in corporate average fuel economy expected to occur from all market-driven technology by 1995. That gain is predicated on four-valve penetration increasing 40 percent from 1987's level of just 5 percent of the fleet.

In 1988, 0.8 percent of domestically built cars had four-valve-per-cylinder engines. In import cars the percentage is considerably higher because most of the Japanese and many European automakers offer such engines.

As a well-trained athlete strains less than an unfit individual, even during light exercise, a four-valve engine can be more efficient. It is able to inhale fuel/air mixture and exhale exhaust gases more easily and in a shorter period of time than a two-valve design.

If manufacturers choose to replace large two-valve-per-cylinder engines with smaller four-valve-per-cylinder engines, the customer can get a car with the same performance and improved fuel economy.

But, if a large two-valve-per-cylinder engine is replaced with a four-valve-per-cylinder engine of the same size, the engine will likely be tuned for power and the customer is likely to use that extra power for more acceleration and speed, according to Carmen Difiglio, deputy director of the Department of Energy's Office of Policy Integration.

And that, in fact is what is happening. Most domestic automakers are concentrating their four-valve technology on larger V-6 and V-8 powerplants, while the imports have used the design on smaller four- and six-cylinder engines. General Motors' Quad 4 is the only domestically produced four-valve four-cylinder engine to date.

Ford Motor Co. is developing a 2.3-liter multi-valve four-cylinder engine, code-named Zeta, for the 1990s.

Interest in diesel-engine technology, which was a source of great interest to automakers as a means of boosting fuel economy in the 1970s and early 1980s, has diminished, the victim of stable gasoline prices, problems with diesels converted from gasoline powerplants, and concern about particulate emissions.

Particulate emissions aside, diesels generally are about about 25 percent more fuel efficient than gasoline engines, and nitrogen oxide emissions, a component of photochemical smog, are lower.

"The studies often cited to support high CAFE levels are based on concept vehicles that use diesel technologies, weigh no more than 900 to 1,900 pounds, carry two to four passengers and generally do not meet U.S. safety or emissions requirements," said Helen O. Petrauskas, Ford Motor Co. vice president of environmental and safety engineering. Petrauskas spoke last month before the Senate subcommittee on energy regulation and conservation.

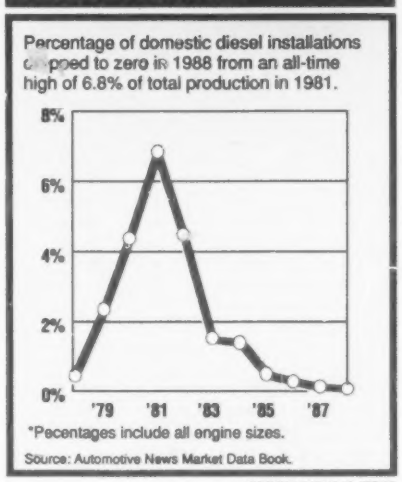
Current research and development efforts at heavy-duty diesel engine manufacturers are primarily aimed at meeting EPA emissions standards rather than CAFE standards, the Department of Energy said.

But, development work on low heat rejection or adiabatic diesel engines continues at the Department of Energy and in programs supported by foreign governments. Adiabatic engine development efforts include the Ceramics Applied to Reciprocating Engine project in Great Britain, Eureka programs involving France and West Germany, the KEBOD program in West Germany and the Japanese Moonlight program.

These engines, which minimize heat loss, are expected to get as much as 30 percent greater fuel efficiency than standard diesel powerplants, the Department of Energy reports. The most likely application will be in the heavy-duty truck segment.

An energy department study released last year, assessing the costs and benefits of alternative fuels, said there are four alternative fuels that could be introduced on a large scale in the United States during the 1990s. They are are methanol, ethanol, compressed natural gas and electricity. Beyond that, technologies offering promise include fuel cells, turbines and hydrogen power.

Diesel engine installations



AUTOMOTIVE NEWS / C. BEEVER

Alcohol fuels

All of the domestic automakers have built vehicles that can run on methanol, ethanol, gasoline or a combination of the three fuels. Although there are some glitches to be worked out, they apparently offer a practical alternative to gasoline-powered vehicles.

As a result of legislation, manufacturers who introduce such vehicles can add a minimum 1.2 mpg to their CAFE fleet average for flexible-fuel vehicles to unlimited credits from dedicated alcohol-fueled vehicles.

All domestic manufacturers have said a multi-fueled vehicle could be production-ready in the early to mid-1990s.

Late last year, Ford had about 30 flexible-fueled vehicles operating in the United States and Canada. Ford uses an optical sensor coupled to an electronic engine control unit to determine the type of fuel in the car. It adjusts engine performance accordingly.

Ford also built 630 methanol-fueled vehi-

see TECHNOLOGY, page 23

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Sales drop continues in Canada

By Bill Vance
SPECIAL CORRESPONDENT

TORONTO — Combined sales of new domestic and imported cars and trucks in Canada declined in March for the third consecutive month, as car sales took their steepest drop of the year.

Rising interest rates were blamed for the downturn. Manufacturers dusted off incentive programs to spur the market.

Combined domestic and imported vehicle sales were down 16.04 percent, compared with the year-earlier period, and were off 9.53 percent for the first quarter.

Combined domestic and imported passenger-car sales were down 16.21 percent in March, compared with the year-earlier period, and declined 11.50 percent for the first quarter.

Domestic and imported truck sales, meanwhile, skidded 15.67 percent in March and slipped 5.32 percent for the first quarter.

"A slowdown in the pace of sales, since the beginning of this calendar year, has been evident and is attributable to the rise in interest rates," said William Atkinson, General Motors of Canada vice president for sales, service and marketing.

Car-sales activity picked up during the second half of March after GM introduced 9.9 percent financing. But GM's car sales were still down 21.87 percent from the year-earlier month.

Ford of Canada's domestic-car sales slipped 17.43 percent in March, prompting the company also to offer low-interest loans.

"It's clear we've got a battle on our hands to combat consumer apprehension about current interest rates," said Jack Clissold, Ford of Canada vice president for sales and marketing. "The industry now is doing that with the most aggressive finance subvention rates in years."

In mid-March, Ford offered loans with interest rates as low as 8.9 percent. "It's definitely a buyer's market out there," said Clissold.

Chrysler Motors suffered the biggest decline among the domestic automakers on a percentage basis as car sales dropped 32.97 percent. In response, it launched the most aggressive incentive program of the Big 3, offering loans with interest rates as low as 6.9 percent for a 24-month term.

Among the imports, Toyota had the highest increase in car sales on a unit basis, with deliveries up 1,166 units over March 1988. Overall, imported-car sales dropped 6.06 percent for the month.

Sales of the Big 3's domestic trucks dropped 19.56 percent in March from the year-earlier period.

Imported trucks also were down, although models sold by GM, Suzuki and Mazda all posted gains. Mazda was the import-truck sales leader for the second consecutive month on the strength of its MPV minivan.

CANADIAN CAR AND TRUCK SALES

Domestic cars	March 1989	March 1988	3 mos., 1989	3 mos., 1988
General Motors	29,736	38,062	68,209	80,219
Ford	16,656	20,173	38,268	45,654
Chrysler	11,532	17,204	25,858	34,599
Honda	2,536	881	7,300	1,824
Volvo	321	178	877	440
Domestic car total	**60,781**	**76,498**	**140,512**	**162,736**
Import cars				
Toyota	7,323	6,157	16,193	14,707
Honda	4,618	5,560	9,970	13,064
Nissan	2,977	3,819	6,100	6,921
General Motors	2,784	2,191	6,019	4,997
Mazda	2,703	3,138	6,038	7,050
Volkswagen	2,548	3,851	5,943	8,773
Hyundai	2,182	3,024	6,385	7,230
Chrysler	2,035	1,285	4,651	2,971
Ford	886	589	1,608	1,411
Suzuki	824	901	1,757	1,766
Subaru	433	414	1,204	1,359
BMW	401	450	1,095	1,115
Mercedes-Benz	345	433	864	926
Volvo	234	333	656	952
Jaguar	151	190	397	605
Saab	116	161	361	349
Lada	47	91	161	248
Skoda	23	53	69	146
Peugeot	44	9	71	21
Import car total	**30,674**	**32,649**	**69,542**	**74,611**
TOTAL — ALL CARS	**91,455**	**109,147**	**210,054**	**237,347**
Domestic trucks (including vans)				
GM	14,386	18,862	34,689	39,954
Ford	13,114	14,129	32,452	33,385
Chrysler	8,862	12,215	22,818	25,884
Domestic truck total	**36,362**	**45,206**	**89,959**	**99,223**
Import trucks (including vans)				
Mazda	1,770	1,234	4,058	2,337
Toyota	1,412	1,588	3,505	3,524
Nissan	1,269	1,347	2,994	3,202
Suzuki	843	676	1,823	1,433
GM	697	83	1,981	244
Chrysler	199	345	652	870
Volkswagen	66	67	125	190
Lada	16	9	50	27
Import truck total	**6,272**	**5,349**	**15,188**	**11,827**
TOTAL — ALL TRUCKS	**42,634**	**50,555**	**105,147**	**111,050**
TOTAL — CARS, TRUCKS	**134,089**	**159,702**	**315,201**	**348,397**

SUNDAY BAN: *VW Canada limits ad melody that resembles popular hymn*

By Alex Law
STAFF CORRESPONDENT

TORONTO — Complaints about the similarity between the music in one of its television commercials and a popular hymn have lead Volkswagen Canada to stop airing the commercial on Sundays.

The melody in the commercial, titled "Changes," is nearly identical to "What a Friend We have in Jesus." Approximately 50 people complained about what they called the misuse of the hymn since the commercial began airing last month in Canada.

Bill Wilson, Volkswagen's advertising and merchandising manager, said some people believe it is sacrilegious to use a hymn for secular purposes. The lyrics to the song used in the VW commercial, which were written by Alan Price for the movie "O Lucky Man" in 1973, deal with the inevitability of change in life.

The commercial, which brought a similar response in Great Britain, shows a woman walking out on her husband or lover. On her way out she discards a ring, a string of pearls, a brooch and a fur coat. When she gets to a Volkswagen GTi, she contemplates throwing the keys down a drain but changes her mind and drives off in the car.

As is the practice with all commercials, Canada's two national networks, the Canadian Broadcasting Corp. and Canadian TeleVision, considered the VW spot before it ran. When complaints were received, they reconsidered it and again gave their approval. A Canadian TeleVision affiliate in Ottawa, Canada's capital, has stopped running the commercial.

Wilson said that to him, Price's song and the hymn sound similar. As a courtesy, and to show that the company had no disrespect for the Christian faith, VW asked the networks to stop airing the advertisement on Sundays.

Future GM cars will use powerful microchip

AUSTIN, Texas — General Motors has told Motorola Inc. it plans to use a new Motorola 32-bit microprocessor for managing a number of functions in its next-generation vehicles.

The microprocessor, a single chip, is the 68332 and is the first in a new Motorola product line, the 68300 family.

Peripheral devices mounted on the chip in addition to its 32-bit core boost overall system performance to more than 10 times that of conventional controllers, said Gary Daniels, general manager of Motorola's microcontroller division here.

"We're putting the power of a Macintosh II into a car," Daniels said. Most high-performance computers rely on a single central processing unit, but the 332 distributes processing power among several units.

Microprocessors are used in cars for such applications as engine and transmission control, traction management, anti-lock brakes, instrument panel displays, radios and tape players and on-board diagnostics.

Truck output sets record for April

By Kathy Boyer
AUTOMOTIVE NEWS STAFF REPORTER

U.S. truckmakers set an April record with assembly of 367,592 units. The total surpassed the previous April peak of 340,385 in 1988.

But despite the monthly high, truck output dipped 7.18 percent from the March total of 396,020.

Scheduled truck production of 89,585 last week dropped slightly (0.15 percent) from the prior week's 89,720 and slipped a bit (0.48 percent) from the year-ago week's 90,021.

Year-to-date, 1,615,080 trucks have been assembled, 6.47 percent more than the 1,516,864 completed last year at this point.

Carmakers built 637,187 units during April, 2.29 percent below the March assembly of 652,146 but 4.42 percent more than the year-ago month's 610,206.

Last week's targeted auto production of 155,258 was 4.70 percent below the previous week's 162,922 and was 3.33 percent below the year-ago week's 160,603.

So far this year, 2,698,491 cars have been built, 7.99 percent more than the 2,498,937 cars built last year at this point.

Companies split last week's scheduled output as follows:

General Motors, 47.09 percent; Ford Motor Co., 24.71 percent; Chrysler Motors, 14.04 percent; Honda of America Manufacturing, 4.99 percent; Mazda Motor Manufacturing (U.S.A.) Corp., 2.89 percent; New United Motor Manufacturing Inc., 2.58 percent; Nissan Motor Manufacturing Corp. U.S.A., 1.49 percent; Toyota Motor Manufacturing U.S.A., 1.40 percent; and Diamond-Star Motors, 0.81 percent.

GM shut down its Reatta Craft Centre in Lansing, Mich., last week because of high inventory. The plant was expected to resume operations today.

April build tops 1988 in Canada

Canadian automakers produced 85,296 cars in April, a decline of 22.57 percent from the March build of 110,143 but an increase of 23.51 percent over the year-ago month's 69,050.

Last week's targeted car output of 21,205 rose 4.60 percent over the previous week's 20,272 but fell 20.66 percent below the year-ago week's 26,727.

So far this year, 358,159 cars have been assembled, 14.44 percent below the 418,596 completed last year at this time.

April's truck production of 82,509 was 5.57 percent below the March output of 87,379 but 2.58 percent more than the year-ago month's 80,437.

Truckmakers scheduled production of 21,137 units last week, slightly above (0.55 percent) the prior week's 21,022 and 3.82 percent more than the year-ago week's 20,359.

Year-to-date, 362,770 trucks have been built, 4.71 percent more than the 346,456 assembled last year at this point.

U.S. CAR	Week Ended May 6, 1989	Week Ended May 7, 1988	Week Ended Apr. 29, 1989	Apr. Total	Jan. 1 to May 6, 1989	Jan. 1 to May 7, 1988
Horizon	800	2,183	853	3,302	4,805	32,985
Sundance	2,500	1,873	2,351	9,610	42,205	38,643
Reliant	0	2,634	0	0	0	34,907
Acclaim	3,000	0	2,699	11,161	42,909	0
Caravelle	0	469	0	0	0	7,410
Gran Fury	0	284	0	0	0	4,422
Total Plymouth	6,300	7,443	5,903	24,073	89,919	118,367
LeBaron K	0	499	0	0	0	6,843
LeBaron J	2,700	1,921	2,615	10,808	42,030	22,928
LeBaron GTS	0	186	0	0	2,946	3,060
N. Yorker C-Class	1,900	2,814	1,864	7,623	41,976	41,172
Fifth Avenue	0	329	0	0	0	12,913
Total Chrysler	4,600	5,749	4,479	18,431	86,952	85,216
Omni	900	2,112	937	3,752	5,550	32,930
Daytona	1,800	1,924	1,766	7,345	37,744	22,065
Shadow	2,200	2,574	2,448	9,559	42,225	39,182
Aries	0	2,286	0	0	0	29,294
Dodge 600	0	462	0	0	0	6,598
Dynasty	3,300	2,331	3,621	13,063	57,404	40,030
Lancer	0	217	0	0	1,528	4,148
Spirit	2,700	0	2,512	10,749	40,206	0
Diplomat	0	525	0	0	0	8,454
Total Dodge	10,900	12,431	11,284	44,468	184,657	182,701
CHRYSLER MOTORS	21,800	25,623	21,666	86,972	361,528	386,284
Escort	8,637	9,339	8,438	33,758	123,569	126,559
Mustang	3,677	4,172	3,498	16,247	84,451	77,249
Tempo	2,721	4,096	2,989	12,771	58,280	72,565
Taurus	8,039	8,729	8,063	34,846	143,273	144,117
Thunderbird	3,268	2,872	3,357	14,138	63,721	57,315
Total Ford Div.	26,342	29,208	26,345	111,760	473,294	477,805
Topaz	1,789	1,420	1,521	7,222	25,608	26,977
Cougar	3,254	2,860	3,360	12,559	54,859	43,918
Sable	2,705	3,524	2,690	9,066	46,983	49,387
Total Mercury	7,748	7,804	7,571	28,847	127,450	120,282
Continental	1,446	1,117	1,449	6,001	26,349	16,351
Mark VII	310	544	409	1,905	9,765	9,268
Lincoln	2,512	3,327	2,627	11,689	48,145	53,246
Total Lincoln	4,268	4,988	4,485	19,595	84,259	78,865
Total L-M Division	12,016	12,792	12,056	48,442	211,709	199,147
FORD MOTOR CO.	38,358	42,000	38,401	160,202	685,003	676,952
Skyhawk	294	0	385	1,653	6,029	11,350
Skylark/Somerset	1,405	1,836	1,292	5,226	20,181	13,798
Century	2,615	3,190	2,658	9,586	43,740	33,439
Riviera	337	147	337	1,970	9,769	2,519
Electra	0	2,370	1,965	7,988	29,084	28,654
LeSabre (fwd)	4,960	2,500	4,980	19,875	51,459	46,686
LeSabre (rwd)	75	274	217	768	3,323	3,305
Reatta	0	154	210	612	2,392	1,800
Total Buick	9,686	10,471	12,044	47,678	165,977	141,551
Cimmaron	0	113	0	0	0	3,634
Eldorado	989	1,170	954	3,654	14,399	14,613
Seville	720	701	697	2,649	10,578	9,263
Brougham (rwd)	705	977	634	2,882	15,132	12,894
Deville (fwd)	4,341	3,555	5,807	19,851	81,586	67,043
Allante	75	65	75	225	1,228	930
Total Cadillac	6,830	6,581	8,167	29,261	122,923	108,377
Cavalier	7,848	7,150	8,298	32,723	143,374	122,844
Camaro	2,720	2,572	2,669	10,655	44,564	28,755
Celebrity	2,045	5,140	2,203	9,147	52,070	59,862
Corsica/Beretta	8,965	9,282	8,970	34,380	153,005	144,654
Caprice	4,495	4,357	3,942	18,388	74,060	69,504
Corvette	560	448	561	2,241	9,449	7,692
Total Chevrolet	26,633	28,949	26,643	107,534	476,522	433,311
Calais	2,195	2,949	2,275	9,197	34,714	39,691
Firenza	0	0	0	0	0	5,220
Cutlass Ciera	1,430	0	1,935	7,352	30,412	0
Cutlass Supreme	3,333	3,995	3,537	6,995	37,593	76,156
Toronado	202	471	194	735	3,863	6,573
88 (fwd)	3,165	3,962	3,497	13,615	57,161	59,388
88 (rwd)	205	268	223	756	2,847	4,702
Olds 98	859	1,584	2,393	8,798	33,540	30,731
Total Oldsmobile	11,389	13,229	14,054	47,448	200,130	222,461
Sunbird	3,126	2,292	3,756	14,672	55,013	38,174
Grand Am	6,300	5,301	5,285	22,924	92,283	86,095
Firebird	1,375	1,478	1,347	5,475	25,797	21,796
Grand Prix	4,050	3,629	4,000	16,000	54,427	39,912
Pontiac 6000	1,350	1,838	2,569	9,824	34,290	27,895
Bonneville	2,255	3,142	2,944	11,568	37,127	37,980
Safari/Parisienne	140	227	139	478	1,995	3,059
Fiero	0	512	0	0	0	7,193
Total Pontiac	18,596	18,419	20,040	80,941	300,932	262,104
GENERAL MOTORS	73,134	77,649	80,948	312,862	1,266,484	1,167,804
DIAMOND-STAR	1,253	0	1,132	4,848	15,333	0
HONDA	7,750	7,221	7,689	30,633	138,299	132,543
Civic	2,666	1,815	2,716	10,637	46,736	34,303
Accord	5,084	5,406	4,973	19,996	91,563	98,240
MAZDA†	4,482	2,278	4,924	9,060	86,095	27,701
NISSAN	2,306	2,516	1,981	8,479	40,342	32,759
NUMMI	4,000	3,316	4,214	16,288	70,322	57,610
Corolla	1,600	1,215	1,550	6,028	28,811	21,234
Geo Prizm/Nova	2,400	2,101	2,664	10,260	41,511	36,376
TOYOTA	2,175	0	1,967	7,843	35,085	0
VOLKSWAGEN	0	0	0	0	0	17,284
Golf/GTI	0	0	0	0	0	11,731
Jetta	0	0	0	0	0	5,553
Total Cars, U.S.	155,258	160,603	162,922	637,187	2,698,491	2,496,937
Total Cars, Canada	21,205	26,727	20,272	85,286	358,159	418,596
U.S., Canada Cars	176,463	187,330	183,194	722,473	3,056,650	2,917,533
U.S., Canada Cars and Trucks	287,185	297,710	293,936	1,172,574	5,034,500	4,780,853

Monthly estimates may contain error of one or two units due to rounding.
†—Total includes the MX-6 and Ford Probe.

CANADIAN CAR	Week Ended May 6, 1989	Week Ended May 7, 1988	Week Ended Apr. 29, 1989	Apr. Total	Jan. 1 to May 6, 1989	Jan. 1 to May 7, 1988
Premier	0	1,658	0	2,295	14,885	25,867
CHRYSLER MOTORS	0	1,658	0	2,295	14,885	25,867
Tempo	3,360	4,164	3,341	13,419	60,063	74,424
Topaz	1,440	1,393	1,447	5,727	25,388	25,352
Crown Victoria	2,918	2,890	2,613	10,345	48,050	50,438
Grand Marquis	2,842	2,901	3,152	12,561	54,079	49,964
FORD MOTOR CO.	10,560	11,348	10,553	42,052	187,580	200,178
Celebrity	565	633	705	1,396	4,456	6,651
Cutlass Ciera	2,995	7,125	3,319	14,799	65,101	93,772
Lumina	4,549	0	3,546	12,446	25,745	0
Pontiac 6000	0	1,402	0	0	0	18,406
Regal	446	3,670	1	3,903	25,090	59,613
GENERAL MOTORS	8,555	12,830	7,571	32,544	120,392	178,442
HONDA	1,650	730	1,680	6,592	29,389	11,774
TOYOTA	260	0	288	1,083	2,814	0
VOLVO	180	161	180	720	3,099	2,335
Total Cars, Canada	21,205	26,727	20,272	85,286	358,159	418,596

U.S. TRUCK☆	Week Ended May 6, 1989	Week Ended May 7, 1988	Week Ended Apr. 29, 1989	Apr. Total	Jan. 1 to May 6, 1989	Jan. 1 to May 7, 1988
Caravan	1,900	2,190	2,416	9,974	40,114	36,372
Dakota	2,500	2,016	2,483	9,929	41,144	44,355
Caravan C/V	100	325	195	856	3,544	5,586
Ram Pickups	2,500	1,997	2,488	9,947	41,142	21,894
Total Dodge	7,000	6,528	7,582	30,706	125,944	108,207
Cherokee	4,600	4,415	5,413	21,654	83,011	63,864
Comanche	500	995	657	2,626	12,014	17,472
Grand Wagoneer	300	350	345	690	5,373	5,265
Wagoneer	100	282	230	898	3,529	4,817
Total Jeep	5,500	6,042	6,645	25,860	103,927	96,618
Voyager	1,800	2,057	2,114	9,267	38,350	33,537
Total Plymouth	1,800	2,057	2,114	9,267	38,350	33,537
CHRYSLER MOTORS	14,300	14,627	16,341	65,833	268,221	238,362
Aerostar	5,800	4,413	4,920	21,337	90,670	80,357
Bronco	1,714	1,236	1,425	6,077	31,657	22,186
Bronco II	2,572	2,345	2,391	10,141	48,650	50,919
Econoline	5,182	5,163	5,241	20,465	89,709	90,193
Heavy trucks	1,439	1,473	1,449	6,164	25,234	24,360
Light trucks	12,982	11,597	11,629	48,048	201,263	185,242
Ranger	7,474	7,589	6,744	28,881	130,493	131,533
Total Ford Div.	37,163	33,816	33,799	141,113	615,676	584,790
FORD MOTOR CO.	37,163	33,816	33,799	141,113	615,676	584,790
Astro	3,397	3,721	3,340	13,823	62,561	62,858
Blazer	621	628	546	2,545	10,235	10,003
Mediums/Heavies	0	476	0	0	1,312	6,325
P-Model	856	802	880	3,264	12,037	14,146
Pickups	7,620	7,623	7,049	27,808	146,023	117,659
S-10	4,482	7,273	4,895	19,779	100,941	102,725
S-10 Blazer	3,557	4,386	3,859	15,594	69,474	57,146
Sportsvan/Van	1,981	1,954	2,197	9,081	35,414	29,051
Suburban	1,685	1,815	1,497	6,838	28,390	26,329
Total Chevrolet	24,199	28,678	24,263	98,732	466,387	426,242
Jimmy	172	210	156	639	3,045	3,094
Mediums/Heavies	0	797	0	0	1,496	16,817
P-Model	87	181	86	352	1,563	1,596
Pickups	2,392	1,624	3,041	11,683	44,490	38,096
S-15	1,076	904	1,203	5,015	23,904	25,141
S-15 Jimmy	926	766	1,048	4,463	19,781	15,355
Safari	630	926	974	4,011	15,598	16,237
Suburban	578	698	609	2,722	11,368	12,970
Vandura/Rally Vans	525	537	816	2,727	9,610	14,221
Total GMC	6,386	6,643	7,933	31,612	130,855	143,527
GENERAL MOTORS	30,585	35,321	32,196	130,344	597,242	569,769
NAVISTAR	1,907	1,890	1,740	7,172	31,373	31,533
NISSAN	2,180	1,617	2,194	9,330	46,548	43,460
AM GENERAL	450	450	450	1,800	7,920	8,010
MISCELLANEOUS	3,000	2,300	3,000	12,000	48,100	40,940
Total Trucks, U.S.	89,585	90,021	89,720	367,592	1,615,080	1,516,864

CANADIAN TRUCK	Week Ended May 6, 1989	Week Ended May 7, 1988	Week Ended Apr. 29, 1989	Apr. Total	Jan. 1 to May 6, 1989	Jan. 1 to May 7, 1988
Caravan	3,114	3,100	3,157	13,136	55,619	54,326
Caravan C/V	336	344	349	1,287	4,149	5,140
Ram Wagon	660	554	665	2,012	10,499	8,782
Ram Van	1,690	1,467	1,755	5,198	27,306	22,336
Total Dodge	5,800	5,465	5,926	21,633	97,575	90,584
Voyager	2,694	2,773	2,731	11,596	48,439	50,019
Total Plymouth	2,694	2,773	2,731	11,596	48,439	50,019
Wrangler	1,700	1,035	1,841	7,416	29,598	18,444
Total Jeep	1,700	1,035	1,841	7,416	29,598	18,444
CHRYSLER MOTORS	10,194	9,273	10,498	40,645	175,612	159,047
FORD MTR. (lt. trks.)	3,648	3,669	3,641	14,338	62,126	64,162
Light trucks	3,270	3,470	2,837	9,990	56,379	57,270
Vans	1,479	1,334	1,536	5,769	24,745	22,127
Total Chevrolet	4,749	4,804	4,373	15,759	81,124	79,397
Light trucks	1,610	1,648	1,688	7,977	27,378	27,574
Vans	666	743	549	2,711	12,032	12,375
Total GMC	2,276	2,391	2,237	10,688	39,410	39,949
GENERAL MOTORS	7,025	7,195	6,610	26,447	120,534	119,346
NAVISTAR	270	222	273	1,079	4,496	3,901
Total Trks., Canada	21,137	20,359	21,022	82,509	362,770	346,456
U.S., Canada Trks.	110,722	110,380	110,742	450,101	1,977,850	1,863,320

☆—Includes window van production. *—Estimated.
Jeep includes commercial only. AM General includes government-desired vehicles.
Miscellaneous includes estimates for Mack, Volvo-White, Kenworth, Peterbilt, Freightliner, Mercedes-Benz, etc.
Monthly estimates may contain error of one or two units due to rounding.